

### **Abstract of the Disclosure**

This invention describes a method for transmitting and forwarding packets over a switching network using time information. The network switches maintain a common time reference, which is obtained either from an external source (such as GPS - Global Positioning System) or is generated and distributed internally. The time intervals are arranged in simple periodicity and complex periodicity (like seconds and minutes of a clock). A data packet that arrives to an input port is switched to an output port based on its order or time position in the time interval in which it arrives at the switch. The time interval duration can be longer than the time duration required for transmitting a data packet, in which case the exact position of a data packet in its forwarding time interval is predetermined.

This invention provides congestion-free data packet switching for data packets for which capacity in their corresponding forwarding links and time intervals is reserved in advance. Furthermore, such data packets reach their destination, which can be one or more (i.e., multicast) in predefined time intervals, which guarantees that the delay jitter is smaller than or equal to one time interval.